



PROPOSED SOIL SAMPLING PLAN
FOR THE
ABANDONED REILLY CHEMICAL AND TAR SITE

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INTRODUCTION

The soil sampling procedures used in previous studies were inadequate to determine the areal extent of the polynuclear aromatic hydrocarbon contamination. After reviewing all of the available data on soils from existing studies, a sampling plan for the Reilly Chemical and Tar site was developed. The proposed plan will provide the necessary information to determine the extent of the soil contamination at the site. In addition, samples from uncontaminated areas would be taken to provide essential information on background levels of polynuclear aromatic hydrocarbons in peat and soil in Minnesota. The proposed sampling plan is based largely on the data obtained from the Phase I Report by Barr Engineering Company. Information reported by National Biocentric, Inc. and Soil Exploration was also useful in developing the sampling plan.

LOCATION AND DEPTH OF SAMPLES

Based on existing data for the Reilly Tar site, the depth of the contaminated materials was approximated. A contour map showing the depths to which contamination is expected to occur was then developed for the site (Figure 1). These contours determine the depth to which the proposed core samples should be taken.

The proposed sampling plan calls for a minimum of fifteen soil cores at the Reilly Tar Site. Five samples each should be taken along two east-west transects, one of these transects is located between Highway 7 and West Lake Street, the other crosses through the middle of the abandoned site. Five additional samples should be taken along a line that runs roughly north-south through the site. The depth of each sample core will vary from 10 to 35 feet

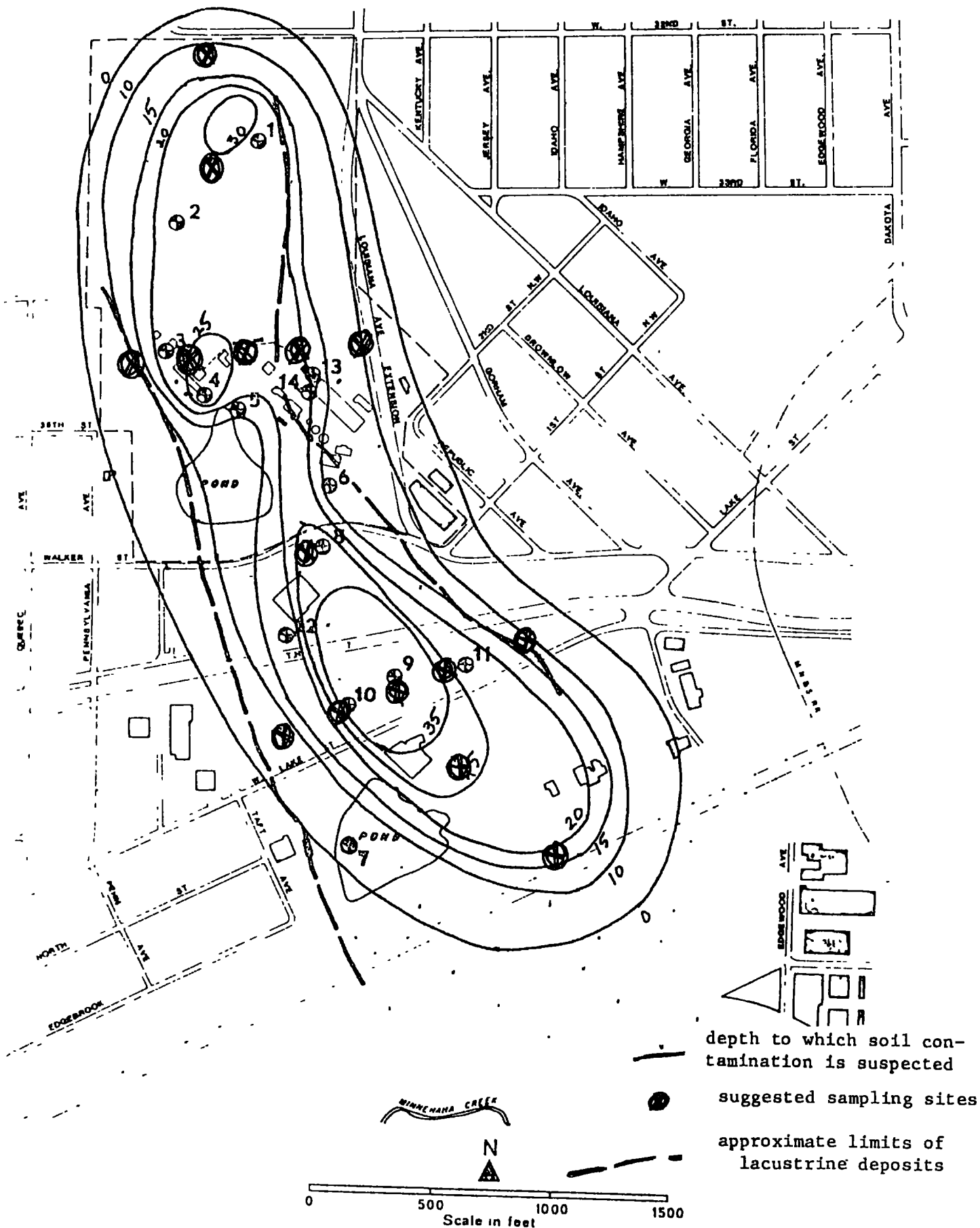


FIGURE 1. SAMPLE DEPTH CONTOURS AND SUGGESTED SAMPLING SITES

depending on the depths to which previous data had indicated that the soil was contaminated, as shown by the contours in Figure 1. A continuous soil core sample is to be collected from each location to the depth indicated.

UNCONTAMINATED SAMPLES

The sampling plan requires the analysis of at least two uncontaminated cores. One of these cores should be taken through a peat bog which is similar to the one at the Reilly Tar Site. This sample core should be taken through the peat and through the next two underlying strata (probably a layer of clay or silty clay underlain by sand). A minimum of one sample core from an uncontaminated site with soil similar to that found at the Reilly Tar Site should also be taken to a depth of at least 20 feet.

METHOD FOR TAKING SAMPLE CORES

All samples are to be collected in continuous cores to the depth specified. Each core should be separated according to geologic strata (fill, peat, clay, sand, etc.) The materials collected in each core from the same geologic stratum should be composited. A representative sample can then be taken and analyzed for each layer in the core. Any layer thicker than 10 feet is to be arbitrarily split into two parts, each part composited and then sampled.

SAMPLE ANALYSIS

The representative samples taken from each layer within the cores should be analyzed to determine the concentrations of specific polynuclear aromatic hydrocarbons present. Samples are to be extracted with methylene chloride as explained in the attached proposed regulations entitled "Guidelines Establishing Test Procedures for the Analysis of Pollutants" (Federal Register,

Vol. 44, No. 233, Monday, December 3, 1979). Gas chromatography and high performance liquid chromatography are to be used to obtain specific PAH definition.